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SEQUENCE LISTING

<110> OKUNO, KAZUAKI  
YABUTA, MASAYUKI

<120> POLYPEPTIDE CLEAVAGE METHOD USING OMPT PROTEASE VARIANT

<130> 47259.5001/00US

<140> 10/573,821

<141> 2006-03-28

<150> PCT/JP04/014704

<151> 2004-09-29

<150> JP 2003-342183

<151> 2003-09-30

<160> 38

<170> PatentIn Ver. 3.3

<210> 1

<211> 184

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 1

Met	Thr	Met	Ile	Thr	Asp	Ser	Leu	Ala	Val	Val	Leu	Gln	Arg	Lys	Asp
1				5					10					15	

Trp	Glu	Asn	Pro	Gly	Val	Thr	Gln	Leu	Asn	Arg	Leu	Ala	Ala	His	Pro
		20					25						30		

Pro	Phe	Ala	Ser	Trp	Arg	Asn	Ser	Asp	Asp	Ala	Arg	Thr	Asp	Arg	Pro
	35					40					45				

Ser	Gln	Gln	Leu	Arg	Ser	Leu	Asn	Gly	Glu	Trp	Arg	Phe	Ala	Trp	Phe
	50				55					60					

Pro	Ala	Pro	Glu	Ala	Val	Pro	Glu	Ser	Leu	Leu	Asp	Leu	Pro	Glu	Ala
	65				70					75				80	

Asp	Thr	Val	Val	Val	Pro	Asp	Ser	Ser	Asn	Trp	Gln	Met	His	Gly	Tyr
			85						90					95	

Asp	Ala	Pro	Ile	Tyr	Thr	Asn	Val	Thr	Tyr	Pro	Ile	Thr	Val	Asn	Pro
		100						105					110		

Pro	Phe	Val	Pro	Thr	Glu	Pro	His	His	His	His	Pro	Gly	Gly	Arg	Gln
	115						120					125			

Met	His	Gly	Tyr	Asp	Ala	Glu	Leu	Arg	Leu	Tyr	Arg	Arg	His	His	Gly
	130					135					140				

Ser Gly Ser Pro Tyr Arg His Pro Arg His Ala Glu Gly Thr Phe Thr  
145 150 155 160

Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile  
165 170 175

Ala Trp Leu Val Lys Gly Arg Gly  
180

<210> 2

<211> 184

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 2

Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp  
1 5 10 15

Trp Glu Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro  
20 25 30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro  
35 40 45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe  
50 55 60

Pro Ala Pro Glu Ala Val Pro Glu Ser Leu Leu Asp Leu Pro Glu Ala  
65 70 75 80

Asp Thr Val Val Val Pro Asp Ser Ser Asn Trp Gln Met His Gly Tyr  
85 90 95

Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro  
100 105 110

Pro Phe Val Pro Thr Glu Pro His His His His Pro Gly Gly Arg Gln  
115 120 125

Met His Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Ala Ala Ala  
130 135 140

Ala Gly Ser Pro Tyr Arg His Pro Arg His Ala Glu Gly Thr Phe Thr  
145 150 155 160

Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile  
165 170 175

Ala Trp Leu Val Lys Gly Arg Gly  
180

<210> 3  
 <211> 184  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 3  
 Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp  
 1 5 10 15  
 Trp Glu Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro  
 20 25 30  
 Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro  
 35 40 45  
 Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe  
 50 55 60  
 Pro Ala Pro Glu Ala Val Pro Glu Ser Leu Leu Asp Leu Pro Glu Ala  
 65 70 75 80  
 Asp Thr Val Val Val Pro Asp Ser Ser Asn Trp Gln Met His Gly Tyr  
 85 90 95  
 Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro  
 100 105 110  
 Pro Phe Val Pro Thr Glu Pro His His His His Pro Gly Gly Arg Gln  
 115 120 125  
 Met His Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Ala Arg Ala  
 130 135 140  
 Ala Gly Ser Pro Tyr Arg His Pro Arg His Ala Glu Gly Thr Phe Thr  
 145 150 155 160  
 Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile  
 165 170 175  
 Ala Trp Leu Val Lys Gly Arg Gly  
 180

<210> 4  
 <211> 184  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

&lt;400&gt; 4

Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp  
 1 5 10 15

Trp Glu Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro  
 20 25 30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro  
 35 40 45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe  
 50 55 60

Pro Ala Pro Glu Ala Val Pro Glu Ser Leu Leu Asp Leu Pro Glu Ala  
 65 70 75 80

Asp Thr Val Val Val Pro Asp Ser Ser Asn Trp Gln Met His Gly Tyr  
 85 90 95

Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro  
 100 105 110

Pro Phe Val Pro Thr Glu Pro His His His His Pro Gly Gly Arg Gln  
 115 120 125

Met His Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Ala Arg Ala  
 130 135 140

Ala Gly Ser Pro Tyr Arg His Pro Arg His Ala Glu Gly Thr Phe Thr  
 145 150 155 160

Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile  
 165 170 175

Ala Trp Leu Val Lys Gly Arg Gly  
 180

&lt;210&gt; 5

&lt;211&gt; 162

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 protein sequence

&lt;400&gt; 5

Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp  
 1 5 10 15

Trp Glu Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro  
 20 25 30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro  
 35 40 45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe  
 50 55 60  
 Pro Ala Pro Glu Ala Val Pro Glu Ser Leu Leu Asp Leu Pro Glu Ala  
 65 70 75 80  
 Asp Thr Val Val Val Pro Asp Ser Ser Asn Trp Gln Met His Gly Tyr  
 85 90 95  
 Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro  
 100 105 110  
 Pro Phe Val Pro Thr Glu Pro His His His His Pro Gly Gly Arg Gln  
 115 120 125  
 Met His Gly Tyr Asp Ala Glu Leu Arg Leu Tyr Arg Phe Val Pro Ile  
 130 135 140  
 Phe Thr Tyr Gly Glu Leu Gln Arg Met Gln Glu Lys Glu Arg Asn Lys  
 145 150 155 160

Gly Gln

<210> 6

<211> 165

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 6

Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp  
 1 5 10 15  
 Trp Glu Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro  
 20 25 30  
 Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro  
 35 40 45  
 Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe  
 50 55 60  
 Pro Ala Pro Glu Ala Val Pro Glu Ser Leu Leu Asp Leu Pro Glu Ala  
 65 70 75 80  
 Asp Thr Val Val Val Pro Asp Ser Ser Asn Trp Gln Met His Gly Tyr  
 85 90 95  
 Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro  
 100 105 110  
 Pro Phe Val Pro Thr Glu Pro His His His His Pro Gly Gly Arg Gln  
 115 120 125

Met His Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Ala Arg Phe  
 130 135 140

Val Pro Ile Phe Thr Tyr Gly Glu Leu Gln Arg Met Gln Glu Lys Glu  
 145 150 155 160

Arg Asn Lys Gly Gln  
 165

<210> 7

<211> 167

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 7

Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp  
 1 5 10 15

Trp Glu Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro  
 20 25 30

Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro  
 35 40 45

Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe  
 50 55 60

Pro Ala Pro Glu Ala Val Pro Glu Ser Leu Leu Asp Leu Pro Glu Ala  
 65 70 75 80

Asp Thr Val Val Val Pro Asp Ser Ser Asn Trp Gln Met His Gly Tyr  
 85 90 95

Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro  
 100 105 110

Pro Phe Val Pro Thr Glu Pro His His His His Pro Gly Gly Arg Gln  
 115 120 125

Met His Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Ala Arg Ser  
 130 135 140

Tyr Ser Met Glu His Phe Arg Trp Gly Lys Pro Val Gly Lys Lys Arg  
 145 150 155 160

Arg Pro Val Lys Val Tyr Pro  
 165

<210> 8  
 <211> 176  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 8  
 Met Thr Met Ile Thr Asp Ser Leu Ala Val Val Leu Gln Arg Lys Asp  
 1 5 10 15  
 Trp Glu Asn Pro Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro  
 20 25 30  
 Pro Phe Ala Ser Trp Arg Asn Ser Asp Asp Ala Arg Thr Asp Arg Pro  
 35 40 45  
 Ser Gln Gln Leu Arg Ser Leu Asn Gly Glu Trp Arg Phe Ala Trp Phe  
 50 55 60  
 Pro Ala Pro Glu Ala Val Pro Glu Ser Leu Leu Asp Leu Pro Glu Ala  
 65 70 75 80  
 Asp Thr Val Val Val Pro Asp Ser Ser Asn Trp Gln Met His Gly Tyr  
 85 90 95  
 Asp Ala Pro Ile Tyr Thr Asn Val Thr Tyr Pro Ile Thr Val Asn Pro  
 100 105 110  
 Pro Phe Val Pro Thr Glu Pro His His His His Pro Gly Gly Arg Gln  
 115 120 125  
 Met His Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Ala Arg Cys  
 130 135 140  
 Gly Asn Leu Ser Thr Cys Met Leu Gly Thr Tyr Thr Gln Asp Phe Asn  
 145 150 155 160  
 Lys Phe His Thr Phe Pro Gln Thr Ala Ile Gly Val Gly Ala Pro Gly  
 165 170 175

<210> 9  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 9  
 Leu Tyr Lys Arg His  
 1 5

<210> 10  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 10  
Ala Arg Arg Ala  
1

<210> 11  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 11  
Arg Arg Arg Ala Arg  
1 5

<210> 12  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 12  
Asp Ala Arg Arg Arg Ala Arg  
1 5

<210> 13  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 13  
Arg Arg Ala Arg  
1



<210> 14  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 14  
Ala Ala Arg Arg Ala Arg Ala Ala  
1 5

<210> 15  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 15  
Arg Arg Arg Ala Arg Ala  
1 5

<210> 16  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 16  
Asp Ala Arg Arg Arg Ala Arg Ala  
1 5

<210> 17  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 17  
Tyr Gly Gly Phe Leu Arg  
1 5

<210> 18  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 18  
Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Ala Ala Ala Ala  
1 5 10 15

<210> 19  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 19  
Ala Ala Ala Ala Ala Ala Ala Arg Ala Arg Arg Ala Ala Ala Ala  
1 5 10 15

<210> 20  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 20  
Ala Ala Ala Ala Ala Ala Arg Ala Ala Arg Arg Ala Ala Ala Ala  
1 5 10 15

<210> 21  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 21  
Ala Ala Ala Ala Arg Ala Ala Ala Arg Arg Ala Ala Ala Ala  
1 5 10 15

<210> 22  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 22  
 Ala Ala Ala Arg Ala Ala Ala Ala Arg Arg Ala Ala Ala Ala  
       1                  5                  10                  15

<210> 23  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 23  
 Ala Ala Ala Arg Ala Ala Ala Ala Arg Arg Ala Ala Ala Ala  
       1                  5                  10                  15

<210> 24  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 24  
 Ala Ala Arg Ala Ala Ala Ala Ala Arg Arg Ala Ala Ala Ala  
       1                  5                  10                  15

<210> 25  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 25  
 Ala Arg Ala Ala Ala Ala Ala Ala Arg Arg Ala Ala Ala Ala  
       1                  5                  10                  15

<210> 26  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 26  
Arg Ala Ala Ala Ala Ala Ala Ala Arg Arg Ala Ala Ala Ala  
1 5 10 15

<210> 27  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 27  
Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Ala Ala Ala  
1 5 10 15

<210> 28  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 28  
Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Ala Ala Arg Ala  
1 5 10 15

<210> 29  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 29  
Ala Ala Ala Ala Ala Ala Ala Arg Arg Ala Ala Ala Arg  
1 5 10 15

<210> 30  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 30  
 Ala Ala Ala Ala Ala Ala Ala Ala Ala Arg Ala Arg Ala Ala  
 1 5 10 15

<210> 31  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 31  
 Ala Ala Ala Ala Ala Ala Ala Ala Ala Arg Ala Ala Arg Ala Ala  
 1 5 10 15

<210> 32  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 32  
 Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Arg Ala Arg Ala Ala  
 1 5 10 15

<210> 33  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 33  
 Ala Ala Ala Ala Ala Ala Ala Arg Arg Arg Arg Ala Ala  
 1 5 10 15

<210> 34  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 34  
 Ala Ala Ala Ala Ala Ala Asp Arg Arg Arg Ala Arg Ala Ala  
           1                  5                  10                  15

<210> 35  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 35  
 Ala Ala Ala Ala Ala Ala Asp Ala Arg Arg Arg Ala Arg Ala Ala  
           1                  5                  10                  15

<210> 36  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 36  
 Ala Ala Ala Ala Ala Asp Ala Ala Arg Arg Arg Ala Arg Ala Ala  
           1                  5                  10                  15

<210> 37  
 <211> 37  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 protein sequence

<400> 37  
 Met His Ala Ala Ala Ala Ala Ala Asp Arg Arg Arg Ala Arg Phe  
           1                  5                  10                  15

Val Pro Ile Phe Thr Tyr Gly Glu Leu Gln Arg Met Gln Glu Lys Glu  
                   20                  25                  30

Arg Asn Lys Gly Gln  
35

<210> 38

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
protein sequence

<400> 38

Met	His	Ala	Ala	Ala	Ala	Ala	Ala	Asp	Ala	Arg	Arg	Arg	Ala	Arg	Phe
1				5					10					15	

Val	Pro	Ile	Phe	Thr	Tyr	Gly	Glu	Leu	Gln	Arg	Met	Gln	Glu	Lys	Glu
			20					25					30		

Arg Asn Lys Gly Gln  
35